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Notes on the Moulting of the Adult of the Water
Mite, *Arrenurus uchidai* n. sp.¹⁾

With 9 Text-figures

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(Communicated by T. UCHIDA)

It has been reported that some species of *Arrenuri* vary in form during the developmental stages, as in the papers by Szalay (1927) and Münchberg ('35, '37, '38). So far as the writer has observed, some of the *Arrenuri* seem to moult in their adult stage, these introducing variations in form. In the following will be given the description of a new *Arrenurus* together with notes on the process of moulting in the genus.

Arrenurus (Arrenurus) uchidai n. sp.²⁾

Male (type, prep. 581). Body (Figs. 1-3) 1030 μ long, including petiolus, 720 μ wide, 625 μ high and almost oval in shape. There are found elevations over the eyes. Dorsal enclosed area depressed, beset with two conical elevations. Posterior lateral appendages are moderately tapered. The paired crooked hairs are a little shorter than the petiolus. Petiolus 184 μ in length, oval in shape and with a pointed posterior tip. Interval between eyes 340 μ . Maxillar organ (Fig. 6) 198 μ long and 115 μ wide. Mandibles (Fig. 7) 198 μ long. Palpi (Fig. 5) stout. Second segment of palpus has seven large bristles, two of which are feathered. The third segment is provided with two bristles, one on each side. The fourth segment is the largest of all, having two bristles on the extensor margin and a sword-shaped movable spine on the flexor side near the

1) Contributions from the Biological Institute, Hokkaido Gakugei University.

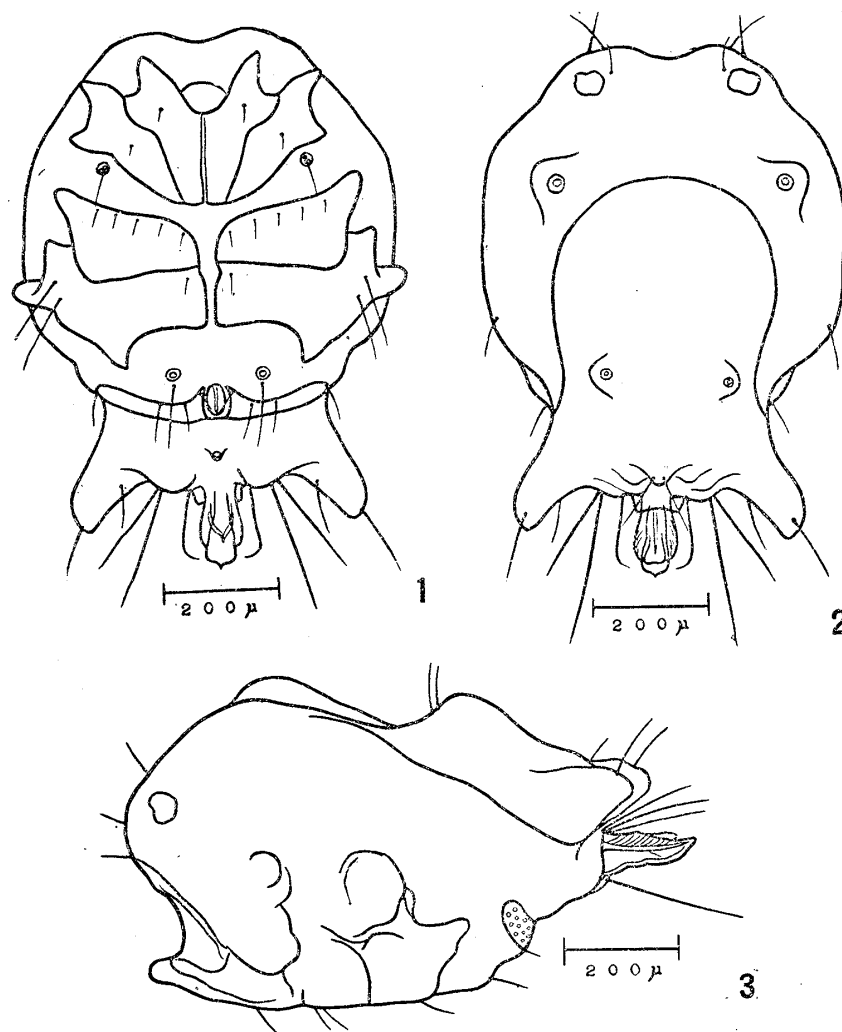
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2) The species is named in honour of Dr. Tohru Uchida, Professor of Hokkaido University.

terminal end. The fifth segment is claw-like and curved. The sizes of the palpal segments are given in Table 1 (in μ).

Table 1.

	I	II	III	IV	V
Extensor side	33	76	56	99	63
Flexor side	16	36	17	66	60

Figs. 1-3. Males of *Arrenurus uchidai* n. sp.

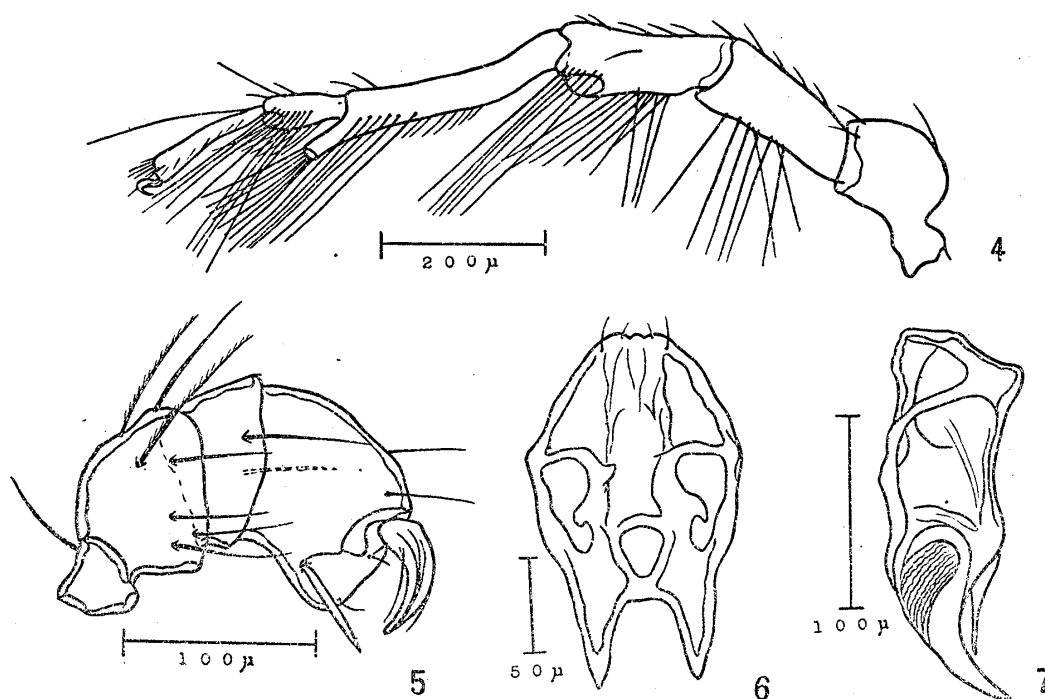
1. Ventral view. 2. Dorsal view. 3. Side view.

Posterior edges of the fourth epimera (Fig. 1) are conically pointed posteriorly in the middle portion. The fourth legs (Fig. 4) have many swimming hairs on the 2nd-4th segments, the fourth segments being provided with a strong spur, beset with seven hairs. The last two

segments are both short. The dimensions of the podal segments are given in Table 2 (in μ).

Table 2.

	1	2	3	4	5	6
I	95	80	120	160	143	217
II	103	97	131	183	165	234
III	131	114	143	200	183	222
IV	171	182	228	392	120	177

Figs. 4-7. Males of *Arrenurus uchidai* n. sp.

4. Left IV th leg. 5. Left palpus. 6. Maxillar organ 7. Mandible.

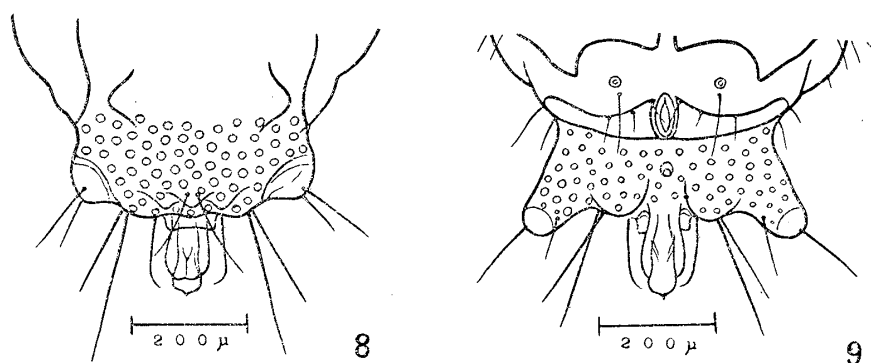
Genital wings (Fig. 1) relatively slim and long. Body colour green. Eyes reddish black.

Locality. Four males, two of them fully grown, were captured by the author on June 4, 1950 in a marsh rich in organic substance at Toyokoro, Tokachi, Hokkaido.

Remarks. The new species, though similar to *Arrenurus neumani* Piersig, *A. radiatus* Piersig and *A. claviger* Koenike in body shape, is distinctly different in the petiolus from the species referred to above.

Moulting. In 1927 L. Szalay described variations of the adult of *Arrenurus sinuator*. According to him, the young adult which has crept out of the teleiophan changes the body shape according to growth-stages. Afterwards, P. Münchberg ('35, '37, '38) also reported similar

variations in the adults of several species of *Arrenurus*. However, these authors have never described moulting in the adult. The author observed by chance the moulting of an adult of *Arrenurus soochowensis* as follows: several male and female specimens of water mites captured from a pond at Moséushi, Uryu-gun, Hokkaido on June 8, 1949, were placed in a glass beaker. Next morning, one male was observed to carry on the posterior half of its back a white object, which was cast off about noon in the beaker. On examination, the white object was found to be moulted skin. So far as the author is aware, there has been no report on the moulting of the adult form in the Hydracarina. After making this observation on *A. soochowensis*, the following remarkable variation of the male adults of *Arrenurus uchidai* n. sp. attracted the author's attention. In the youngest male (Fig. 8) captured by the author, the caudal lateral appendages have no porous pattern and are very short, colourless and transparent, the skin being very thin. The whole body except the caudal appendages agrees with that of the fully grown adult. In a young male which seems to be somewhat more advanced (Fig. 9), the caudal appendages are almost equal in size to those of the fully grown adult, but the skin of the tip remains thin, colourless and transparent, having no porous pattern. It is noticeable that these young male adults both have soft skin all over the body.



Figs. 8, 9. Young males of *Arrenurus uchidai* n. sp.

8. Postero-dorsal view of the youngest specimen.
9. Postero-ventral view of a more advanced young specimen.

In the fully grown male (Figs. 1-3), the caudal lateral appendages are somewhat tapering to the end and marked with a porous pattern all over the surface as in the rest of the body. From the fact above described, it can be surmised that the new species also undergoes moulting in the adult stage.

In concluding, the author wishes to express his cordial thanks to Prof. Tohru Uchida, Hokkaido University, for his kind guidance in the course of this research.

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